

In re Application of:  
Haussecker et al.  
Application No.: 10/685,867  
Filed: October 14, 2003  
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PATENT  
Atty Docket No.: INTEL1330-1(P14242X)

### **REMARKS/ARGUMENTS**

Claims 1, 26 and 28 have been amended. Subsequent to the entry of the present amendment, claims 1, 2, 4-13, 24-26 and 28-29 are pending and at issue. These amendments add no new matter as the claim language is fully supported by the specification and original claims.

#### **I. Rejections under 35 U.S.C. §102**

Claims 1-2, 4-7, 12-13, 24-26 and 28-29 are rejected under 35 U.S.C. §102(b) as allegedly anticipated by Kley, U.S. Patent No. 6,396,054. Applicants respectfully traverse this rejection.

Regarding claim 1, the Office Action alleges that Kley teaches a method comprising:

a) alignment of an object on a surface by molecular combing (column 16, lines 50-60 where object is positioned on the x,y plane (aligning object) on a surface (diamond coated surface) (column 16, lines 15-20) by molecular combing (column 17));

b) imaging the object by at least two different modalities (different modes) of scanning probe microscopy (SPM) (column 2, lines 24-28) to obtain data for one or more properties of the object (metric measurements) (column 2, lines 50-51);

c) analyzing the data using a model-based analysis using one or more models of physical structures of known objects (topography) (column 4, lines 63-67);

d) estimating the values of one or more parameters from the data analysis (AFM and STM measurements) (column 10, lines 15-16); and

e) fusing the estimated parameters to form a parameter-based characterization of the object (column 19, lines 20-50).

The present invention discloses the alignment of an object by molecular combing, stating "SPM labels, probes and/or biomolecules to be analyzed may be attached to a surface and aligned prior to analysis. Alignment may provide for an increased accuracy and/or speed of

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analysis.” The “attached molecules are aligned in a parallel fashion that may be more easily and accurately analyzed.” The advantage of this is that “Molecules or SPM labels that are placed upon a surface in a disorganized pattern may overlap with each other or be partially obscured, complicating their detection and/or identification.” (see paragraphs [0041] and [0043] in the application). Applicants have amended claims 1 and 24 to clarify that the object is aligned in a parallel manner on the surface by molecular combing.

A rejection of claims under 35 U.S.C. §102 is improper unless each and every element of the claimed subject matter is found, either expressly or inherently described, in a single prior art reference (*Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631 (Fed. Cir. 1987); MPEP § 2131).

In the prior response, Applicants disclosed that a key feature of the invention is alignment of the object by molecular combing and Applicants at that time amended claim 1 to include “aligning an object on a surface by molecular combing”. In the present Office Action at page 2, the Examiner disagreed with those arguments stating “Kley teaches this concept at column 16, lines 50-60 where object is positioned on the x.y plane (aligning object) on a surface (diamond coated surface) (column 16, lines 15-20) by molecular combing (column 17). The Applicant is advised to consider this reference closely.”

Applicants have reviewed the Kley reference closely and again come to the conclusion that these elements are missing, thereby precluding a finding of anticipation. In addition, claims 1 and 24 have been amended to clarify that the object is aligned in a parallel manner on the surface, further precluding a finding of anticipation.

The present Office Action alleges that Kley discloses the concept of aligning an object on a surface by molecular combing. Applicants respectfully disagree.

First, Kley does not disclose aligning an object, as suggested in the Office Action. At column 16, lines 50-57, Kley discloses:

“the scanning control routine 122 generates control signals to control the translator 110 for positioning the object in the x,y plane and generates control signals to control the optics of the microscope 160 for adjusting the confocal region (focal plane) in the z direction. However, those skilled in the art will appreciate that a translator that positions an object in each of the x,y, and z directions could also be used.”

Nowhere in this passage, or anywhere else in Kley, is it disclosed to align an object in a parallel manner on a surface by molecular combing. Applicants point out the deficiency suggested by Kley of just “positioning the object in the x,y plane” by stating that objects “that are placed upon a surface in a disorganized pattern may overlap with each other or be partially obscured, complicating their detection and/or identification.” (paragraph [0041] in the application). It is obvious that “positioning the object in the x,y plane” of Kley is not equivalent to aligning an object in a parallel manner on a surface by molecular combing, as required in the claims.

Second, the diamond coated surface in Kley at column 16 is not a surface that objects are aligned on, as suggested in the Office Action. Kley states:

“FIG. 8d shows a tip 132 with an obdurate diamond layer 301 over the core material 300 just at the sharp end 188. As in the tips 132 of FIG. 8a-8c, the conductive coating 304 is removed or rubbed off from the sharp end 188 of the tip 132 to form an aperture at the sharp end 188. The core material 300 or an overlying tungsten, silicon carbide or silicon nitride layer at the sharp end 188 is pushed into or rubbed on a surface containing fine grain diamond (such as a lap or polycrystalline diamond coated surface). The sharp end 188 picks up a seed crystals of diamond. The probe 102 is then placed in a CVD environment for growth of the polycrystalline diamond layer 301 at the seed sites around the sharp end 188.” (Kley, column 16, lines 9-21).

As can be seen from this passage, the diamond coated surface discussed in Kley is a surface containing fine grain diamond into which the sharp end 188 of the core material 300 is pushed to pick up seek crystals of diamond to grow a diamond layer 301. This diamond coated surface of Kley is not a surface on which objects are aligned, as alleged in the Office Action and required in the claims.

Regarding claim 24, the Office Action refers back to claims 1 and 14 for teachings and explanations. In addition, the Office Action alleges that "Kley further teaches a controller (FIG. 26, "controller", element 114) to control the operation of the scanning probe microscope and memory (FIG. 26, "memory", element 124) to include one or more characterizations of known structures, and a surface for attachment (column 16, lines 15-20)."

Applicants have amended independent claim 24, similar to claim 1, namely "a surface for attachment and alignment of the molecular structures in a parallel manner by molecular combing prior to analysis". As discussed above, Kley reference does not teach this element, thereby precluding a finding of anticipation.

Accordingly, for at least the reasons set forth above, it is submitted that the cited reference does not teach each and every element of the claimed invention and, therefore, respectfully request that the rejection under 35 U.S.C. §102(b) of amended independent claim 1, along with dependent claims, 2, 4-7, 12-13, and independent claim 24, along with dependent claims 25-26, 28-29, be withdrawn.

## **II. Rejections under 35 U.S.C. §103**

Claims 8-11 are rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over the combination of Kley U.S. Patent No. 6, 396,054 and Grand et al. "Epitaxial growth of copper

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phthalocyanine monolayers on Ag(111)", Surface Science, vol. 336, no. 3, 1 November 1996.  
Applicants respectfully traverse this rejection.

Claims 8-11 depends upon amended claim 1, which has been shown above to be allowable over the Kley because Kley does not describe all the elements and limitations recited in claim 1. The addition of Grand et al. does not change the fact that claim 1 is allowable over Kley. Therefore, claims 8-11 should be allowable for at least those same reasons. Accordingly, reconsideration and withdrawal of the rejection 35 U.S.C. §103(a) is therefore respectfully requested.

**V. Double Patenting Rejection under 35 U.S.C. §101**

Claims 1-2, 4-13, 24-26 and 28-29 stand provisionally rejected under 35 U.S.C. §101 as being unpatentable over claims 1-29 of co-pending application No. 10/273,312.

A terminal disclaimer accompanies this Response for co-pending application No. 10/273,312. Accordingly, withdrawal of the rejection of the claims under the judicially created doctrine of obviousness-type double patenting is respectfully requested.

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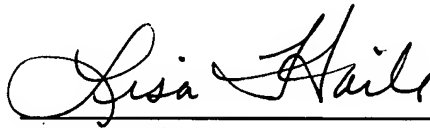
**III. Conclusion**

In view of the amendments and above remarks, it is submitted that the claims are in condition for allowance, and a notice to that effect is respectfully requested. The Examiner is invited to contact Applicant's undersigned representative if there are any questions relating to this application.

Applicants have enclosed check number 579897 in the amount of \$130.00 for the terminal disclaimer fee associated with this submission. Applicants do not believe any other fees are due in connection with this submission, however if any other fees are due, please charge any fees, or make any credits, to Deposit Account No. 07-1896 referencing the above-identified attorney docket number.

Respectfully submitted,

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